

A PRELIMINARY LIST OF COLLEMBOLA OF UTAH.

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This study was undertaken because of the lack of information on Collembola occurring in Utah, the opportunity it afforded to learn something of the ecology of these interesting insects, and the fact that some of the species are of economic importance. Also this will help add to our information on the range of Collembola for this section of the United States. More than 250 field samples of leaves, bark, grass, soil, etc., have been collected and the Collembola thus obtained identified by D. L. Wray. Most of the specimens were secured by means of a modified Berlese funnel. From a few to many species were present in most samples of leaf mould examined. Unless otherwise indicated, collections were made by G. F. Knowlton and Shih Chun Ma, in Utah during the years 1947, 1948, and 1949.

ORDER COLLEMBOLA LUBBOCK

FAMILY PODURIDAE LUBBOCK

Podura aquatica L. Wellsville, May 18, R. S. Bailey.

Achorutes maturus Folsom. Logan, Dec. 15, among moldy boxelder leaves; Hyde Park, March 19, among moldy Lombardy poplar leaves; Smithfield, March 19, under bark of dead poplar; Logan, April 22, among cattle litter and grass; Woodscross, March 28, among moldy grass and willow leaves; Cove, April 9, among a thick layer of poplar leaves, on the ground; Odgen, March 13, among grass and weeds on the ground; Randolph, April 20, among cottonwoods and shrub leaves beneath bushes; Millville, April 26, among layers of wet and moldy leaves.

Achorutes armatus Nicolet. Logan, August 31, among boxelder leaves; Woodscross, March 25, among moldy grasses and willow leaves; Smithfield, April 18, from fragments of a rotted post; Randolph, April 20, among cottonwood and shrub leaves on the ground.

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- Achorutes nivicolus* Fitch. Cove, April 9, among a thick layer of poplar leaves; Providence, Feb. 14; Logan, May 17.
- Achorutes guthrii* Folsom. Promontory, March 17, on the ground (H. E. Dorst, W. E. Peay, H. F. Thornley).
- Xenylla baconae* Folsom. Providence Canyon, March 6.
- Willemia similis* Mills. Smithfield, March 19, among leaves and bark of dead poplar.
- Friesea claviseta* Axelson. Hyde Park, March 19, among moldy Lombardy poplar leaves; Smithfield, March 19, under bark of dead poplar; Logan, March 20, among moldy boxelder leaves, and April 1, among pine needles, and under ground beyond the roots of grasses; Rock Canyon of Provo Canyon, October 29, among moldy leaves, bark of boxelder and big-toothed maple.
- Friesea grandis* Mills. Logan, August 31; Providence Canyon, March 6.
- Neanura muscorum* Templeton. Lewiston, March 19, among moldy grasses, litter, and leaves of poplar.
- Neanura persimilis* Mills. Colton, May 11, willow leaves, grass, (H. F. Thornley).
- Onychiurus armatus* (Tullberg). Logan, Dec. 13, among fallen leaves of boxelder; Smithfield, March 19, among leaves of poplar and pine needles on the ground; Logan, March 20, among moldy boxelder leaves; Randolph, April 20, among cottonwood and shrub leaves.
- Tullbergia collis* Bacon. Millville, Nov. 16, on the ground and among leaves of poplar; Logan, March 20, among leaves of boxelder; Cove, April, under poplar leaves on ground; Garden City, April 20, among leaves of plum and apple.

FAMILY ENTOMOBRYIDAE TÖMÖSVÁRY.

- Folsomides parvus* Folsom. Big Cottonwood Canyon, May 7, willow leaves.
- Folsomia elongata* MacGillivrayi. Hyde Park, March 19, among moldy Lombardy poplar leaves; Smithfield, March 19, under bark and among dead poplar leaves; Millville, Nov. 16, among moldy poplar leaves on ground.
- Folsomia diplophthalma* Axelson. Hyde Park, March 19, among moldy poplar leaves.
- Folsomia fimetaria* Linn. Hyde Park, March 19, among moldy Lombardy poplar leaves.
- Guthriella antiqua* Folsom. Murray, May 31, among decomposing celery trimmings.

- Proisotoma aquae* Bacon. Logan, Dec. 13, among moldy boxelder leaves; Woodscross, March 19, among moldy willow leaves and grasses; Odgen, March 13, among grasses on ground; Millville, April 20, among moldy leaves on ground.
- Proisotoma minuta* Tullberg. Logan, March 20, among boxelder leaves on the ground.
- Proisotoma titusi* Folsom. South Promontory, March 17, blackening the ground over large area, (H. E. Dorst, W. E. Peay, H. F. Thornley). This species has sometimes "blackened the ground" in many spots along the highway between Snowville, Utah and Stravell, Idaho (Knowlton).
- Isotomurus palustris* (Müller). Logan Canyon, May 17.
- Isotomurus palustris* var. *texensis* Folsom. Providence Canyon, April 18 (R. S. Roberts).
- Isotoma arborea* Linn. Cove, April 9, among poplar leaves on ground.
- Isotoma minor* Schäffer. Garden City, April 20, among a light covering of plum and apple leaves on ground.
- Isotoma eunotabilis* Folsom. Logan, Dec. 13, among boxelder leaves on ground; Rock Canyon of Provo Canyon, October 29, among moldy leaves and bark of boxelder and maple; Randolph, April 20, among fallen cottonwood leaves; Garden City, April 20, among moldy leaves of plum and apple.
- Isotoma nigrifrons* Folsom. Richmond, March 19, among moldy grasses, livestock bedding, and poplar leaves.
- Isotoma olivacea* Tullberg. Murray, May 31, among decomposing celery trimmings from the 1948 crop.
- Isotoma trispinata* MacGillivrayi. Smithfield, March 19, among fallen pine needles and under leaves and bark of dead poplar; Logan, April 1, under fallen pine needles; Cove, April 9, among poplar leaves on ground and under grass roots.
- Isotoma viridis* Bourlet. Colton, May 11, willow and moldy cottonwood leaves and grass (Knowlton, Ma, and Thornley).
- Isotoma viridis* var. *riparia* Nicolet. Colton, May 11, under cottonwood and willow leaves, grass (Thornley).
- Entomobrya assuta* Folsom. Smithfield, March 19, among leaves and beneath barks of dead poplar; Logan, April 1, among pine needles on ground; Cove, April 9, among moldy poplar leaves on ground.
- Entomobrya purpurascens* Packard. Logan, April 26, among spruce needles on the ground.
- Entomobrya multifasciata* Tullberg. Millville, Nov. 16, among

poplar leaves on ground; Logan, April 1, among pine needles on ground, and also on onion in Utah State Agri., College greenhouse where it was believed to be causing injury.

Entomobrya marginata Tullberg. Millville, April 20, among moldy leaves on ground.

Entomobrya atrocincta Schött. Logan, April 2, among poplar leaves on ground.

Entomobrya pseudoperpulchra Mills. Logan, April 1, among pine needles on ground; Rock Canyon, Oct. 29, among fallen leaves and bark of boxelder and maple.

Entomobrya nivalis Linn. Moab, May 7, willow leaves.

Sira buski Lubbock. Logan, June 29, on steps of and entering house and basement of a dwelling.

Sira platani Nicolet. Logan, August 30, in kitchen sink; Logan, June 22, on steps and entering building. Invading Knowlton home during much of 1948 and spring of 1949.

Lepidocyrtus cyaneus Tullberg. Wellsville, May 18, among moldy leaves and grasses; Hyde Park, March 19, among Lombardy poplar leaves on ground; Smithfield, March 19, under bark and leaves of poplar; Millville, Nov. 16, among poplar leaves; Cove, April 9, among poplar leaves; Rock Canyon, Oct. 29, under bark and leaves of boxelder and maple; Randolph, April 20, among cottonwood leaves; Garden City, April 20, among plum and apple leaves on ground.

Pseudosinella octopunctata Börner. Woodscross, March 25, among grasses and willow leaves on ground; Logan, April 1, among pine and spruce needles on ground, also among poplar leaves; East Smithfield, April 15, in rotten post on ground; Randolph, April 20, among fallen cottonwood leaves.

Pseudosinella violenta Folsom. Logan, August 31, under poplar bark, March 20, among moldy leaves; Randolph, April 20, among cottonwood leaves.

Pseudosinella sexoculata Schött. Logan, March 20, April 1, among moldy leaves and grass roots under ground; Logan Canyon, April 3, among maple leaves on ground; Rock Canyon of Provo Canyon, Oct. 22, among boxelder and maple leaves on ground; Randolph, April 20, among cottonwood leaves.

Pseudosinella alba Packard. Richmond, March 19, among grass, litter and poplar leaves.

Tomocerus vulgaris Tullberg. Logan, April 2, among moldy leaves on ground.

FAMILY NEELIDAE FOLSOM.

Nelus minutus Folsom. Cove, April 9, among fallen poplar leaves.
Megalothorax tristani Denis. Richmond, March 19, among moldy poplar leaves, grasses, and litter.

FAMILY SMINTHURIDAE LUBBOCK.

Sminthurides (Sphaeridia) pumilis Krausbauer. Logan, March 19, among moldy poplar leaves; Richmond, March 19, among moldy grasses, litter, and poplar leaves.

Sminthurinus elegans Fitch. Logan, Dec. 13, among boxelder leaves on ground; Rock Canyon, Oct. 29, among leaves and twigs of maple and boxelder; East Smithfield, April 16, in fragments of rotten post; Millville, April 20, among moldy leaves.

Deuterosminthurus repandus Agren. Laketown, August 18, on raspberry. Numerous on raspberry and strawberry foliage at Garden City, Pickleville, and Laketown, June 1949.

Ptenothrix unicolor Harvey. East Smithfield, April 15, on parts of a rotten post.

Thus in this paper are listed 52 species and 25 genera that occur in Utah. This list will probably be materially increased as examinations continue.

Nemestrinidae in Wyoming.—As yet there are no published records of nemestrinids from Wyoming, although such flies could be expected there since they have been found in adjoining areas. Professor D. G. Denning recently sent me seven specimens from the collection of the Entomology Department of the University of Wyoming, representing two species. *Neorhynchocephalus sackenii* (Williston): Manville, Niobrara Co., one male, July 17, 1947; Niobrara Co., one female, July 6, 1944. *Trichopsidea (Parasymmetricus) clausa* (Osten Sacken): Manville, one male and one female, July 17, 1947, and 2, 1948; Niobrara Co., one male, June 22, 1944; Goshen Co., one male and one female, July 7, 1944 and 1, 1945. All specimens collected by R. D. Pfadt.—J. BEQUAERT, Museum of Comparative Zoology, Cambridge, Massachusetts.